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RESEARCH AND PRODUCT DEVELOPMENT

CME Group Euro-Denominated E-mini S&P 500 Futures

Opportunities for Spread Trading vs. USD-denominated E-mini S&P 500 Futures

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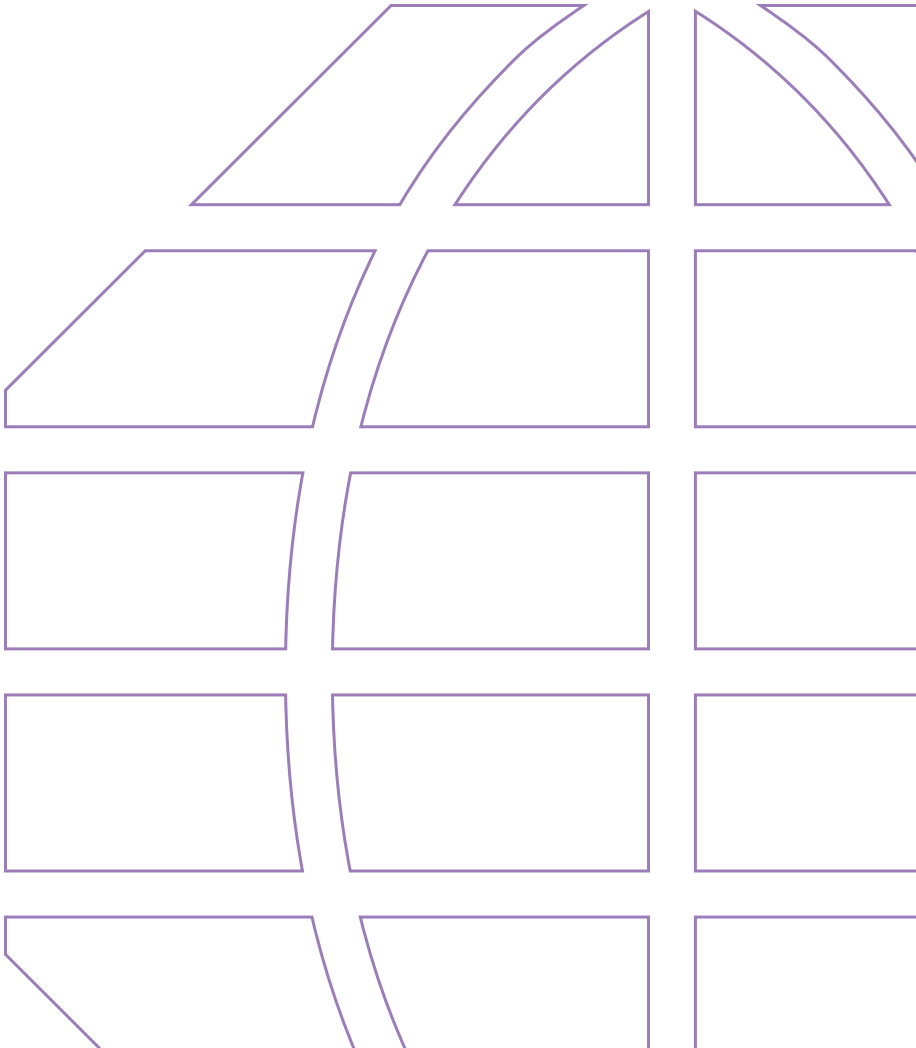


The addition of euro-denominated futures on the S&P 500 index introduces many compelling spread trading opportunities with the U.S.dollar-denominated contract.

Following the modest success of the Nikkei 225 futures denominated in the U.S. dollar and Japanese yen currencies, euro-denominated E-mini S&P 500 index futures will be listed for trading on October 27, 2008. It will be trading along with the venerable E-mini S&P 500 futures on CME Globex electronic trading system at the CME Group. The new addition should prove to be a valuable product by introducing a currency dimension in the highly liquid E-mini S&P 500 futures market.

The new euro-denominated E-mini S&P 500 futures share many features in common with the USD-denominated version. The notable difference lies, of course, in the contract multiplier – EUR 50 vs. USD 50. At the current exchange rate, the euro-denominated contract is about 40 to 50 percent larger in notional value terms. Exhibit 1 shows a comparison of the key contract specifications between the euro-denominated E-mini S&P 500 and its USD-denominated counterpart.

Both contracts terminate at the same moment on expiration, and, more importantly, the same final settlement price. At the expiration, both contracts will converge to the same Special Opening Quotation (SOQ) of the underlying S&P 500 futures. One contract will have the variation paid in euros, while the other in U.S. dollars.

The currency denomination wrinkle brings forth not only a slightly larger-sized contract, but also a possible pricing differential between the two versions of the contracts. While a participant might have a preference to settle the trade in one currency or another, there could be other reason for the performance differences, vis-à-vis. whether a relationship exists between euro-USD exchange rate and the index performance.

Suppose the U.S. dollar has a tendency to strengthen along with the equity indexes and to weaken along with a stock market decline; market participants might prefer a long position in the USD-denominated version of the contract vis-à-vis the euro-denominated version. As the index rises, the profit paid in USD will benefit from the appreciation of the U.S. dollar in relation to the euro. Conversely, as the index declines, the loss in USD incurred is mitigated by the tendency of the USD to depreciate against the euro.

Of course, if the market has the same consensus on the correlation, the USD-denominated E-mini S&P 500 Futures should command a premium over the euro-denominated version to compensate for the advantage. As the expiration draws closer, the advantage would gradually wear out, with both contracts converging to the same final settlement price.

EXHIBIT 1:

Contract Specifications of euro-denominated vs. USD-denominated E-mini S&P 500 futures

	E-mini S&P 500 Futures	
	Euro-denominated Ticker: EME	**USD-denominated** Ticker: ES
Contract Multiplier	50 euros (€50) per index point	50 USD ($50) per index point
Tick Size	Outright: 0.25 index point (€12.50) Spread: 0.05 index point (€2.50)	Outright: 0.25 index point ($12.50) Spread: 0.05 index point ($2.50)
Listing Cycle	Five (5) consecutive months in quarterly cycle, i.e. March, June, September, December	
Venue/Hour All times listed in Central Time (CT)	Trade exclusively on the CME Globex electronic trading platform Mondays – Thursdays from 3:30 p.m. – 3:15 p.m. (daily maintenance shutdown from 4:30 – 5:00 p.m.); Sundays from 5:00 p.m. – 3:15 p.m.	
Termination of Trading	8:30 a.m. CT on third Friday of Contract Month	
Final Settlement	Cash-settled to the Special Opening Quotation (SOQ) of the S&P 500 Index on the day of termination of trading.	
Limits	5% ETH limits, 10%, 20%, 30% "circuit breakers" during RTH	
Fungibility	Distinct from the USD-denomination S&P 500 and E-mini S&P 500 futures	Fungible at 5-to-1 ratio with the regular-sized S&P 500 Futures

EXHIBIT 2:

Nikkei 225 futures price differential: Premium of lead-month USD-denominated over the JPY-denominated Nikkei 225 futures since 2007. The premium gradually dissipates and converges to zero at each expiration.

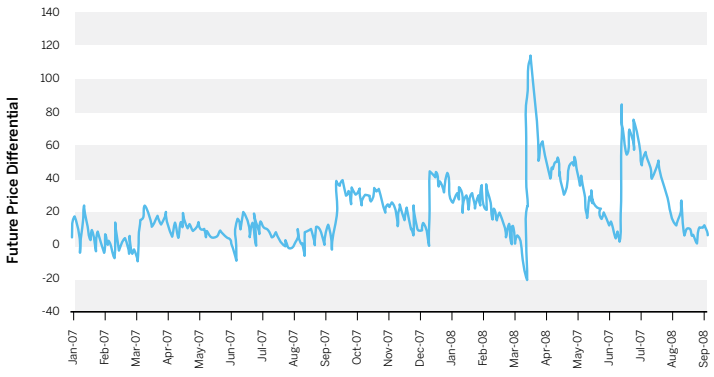


Exhibit 2 illustrates our observation with the price differential between the Japanese yen- vs. USD-denominated Nikkei 225 futures at CME Group.

The liquidity of the USD-based E-mini S&P 500 futures market makes it easy to execute large trades without moving the market.

Spreading ES vs. EME

A common question regarding the relative pricing between the two Nikkei 225 futures contracts is how to construct a spread trade between them contract and isolate the spread performance. A detailed discussion of the topic can be found in our earlier publication: "Spreading CME Group Dollar-denominated and Yen-denominated Nikkei 225 Index Futures." The same methodology applies to our euro- and USD-denominated E-mini S&P 500 Index Futures (hereafter referred to as EME and ES, respectively).

Simply put, the hedge ratio is determined by the relative value of the multipliers of the two versions. As of this writing, the euro is valued at approximately 1.41 USD. As such, the hedge ratio is approximately 1.41 ES contract per 1 EME contract.

For example, for a short-EME/long-ES spread position of 1,000 x 1,410 (at a ratio of 1.41), a 2.5 point parallel move in the index futures will yield opposing P/Ls of €125,000 vs. $176,250. If the exchange rate stays at 1.41, the two P/Ls would offset – possibly via a currency transaction. Alternatively, the market participant can consider hedging with a CME Group EuroFX futures, which carries a notional size of €125,000.

After accounting for any exchange rate movement, the index performance will generate a net gain or loss. If, indeed, the S&P 500 Index tends to go up and down with the strength of the USD, a USD profit from the long ES position would tend to exceed the EUR loss from the short EME position after the conversion, as USD appreciated along with the index. Conversely, if the S&P 500 drops, a USD loss from the long ES position would tend to be more than covered by the EUR gain from the short EME position. The profitability of the spread can then be characterized by the race between the spread converging to zero, and the accumulation of these net daily P/Ls.

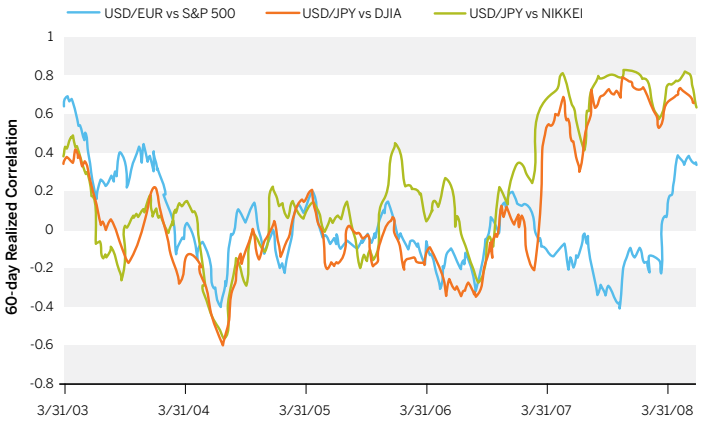
Correlation Pattern

Given the nature of the spread P/L behavior, the factors impacting the the spread pricing are quite clear. The aforementioned publication contains a detailed discussion of the factors, which we will list here:

- Time to expiration – it takes time to pile up the net P/L;
- Volatilities of the exchange rate and index – spread would not be worth much if nothing moves;
- Correlation – no correlation, no reason for the spread.

EXHIBIT 3:

60-day Realized Correlation Pattern between the euro/USD exchange rate and the S&P 500 Index. For comparison purposes, the realized correlation between JPY-USD exchange rate and the NIKKEI 225 and Dow Jones Industrial Average are shown. Note: In order to show patterns over the same time periods, Nikkei 225 futures prices were used instead of the cash Nikkei 225 Index closes.



To underscore the importance of the correlation for the spread differentials, in Exhibit 3 we documented the realized correlation between the S&P 500 Index and the USD-EUR exchange rate, as well as the USD/JPY exchange rate against the Nikkei 225 and Dow Jones Industrial Average (DJIA) for comparison purposes.

Starting from the first quarter of 2007, the dollar/yen exchange rate has demonstrated a very pronounced correlation – the strengthening of the USD and the stock market advances are linked. In fact, both the Nikkei 225 and the DJIA vs USD/JPY exchange rate have the same correlation pattern. To a lesser extent, the USD/EUR exchange rate shows a similar pattern with S&P 500 Index more recently.

As such, the USD-version of the Nikkei 225 was priced at a premium over its JPY-denominated version. As shown in Exhibit 2, this spread differential became quite pronounced, especially in the last couple of cycles.

If the euro-denominated version of the E-mini S&P 500 futures (or, for that matter, JPY-denominated DJIA) were listed, they might have been priced at a discount versus their respective USD-denominated siblings.

An interesting observation was the fact that the correlation pattern appears to be more associated with the currency and less with the specific indexes. Notice the tight co-movements of the realized correlation between the two USD/JPY series relative to the USD/EUR series.

Note on Trade Execution

An added advantage of the E-mini S&P 500 futures pair over the Nikkei 225 futures pair is the fact that the ES enjoys a very liquid market, virtually around the clock. It makes executing a large EME/ES spread trade much easier to do.

At a certain specific point during the year, there is an additional trade execution strategy at the disposal of market participants for putting on a very large EME/ES spread.

During the two- or three-week period prior to the expiration of the lead month contracts, calendar spread markets would become very deep and liquid. Specifically for the E-mini S&P 500, the tick increment for calendar spreads is 0.05 index points, as opposed to the 0.25 index points in the outright market. Further, the spread market during these "roll-over" periods are typically very deep. One often finds thousands of contracts at the best bid/ask levels for the spreads.

To establish a long-EME/short-ES spread position in the soon-to-be nearby month, market participants can, in fact, long the EME calendar spread and short the ES calendar spread. The expiring contracts would expire to the same price in the near future, leaving only the EME/ES spread in the next contract month. While there are added out-of-pocket execution costs for the two spreads instead of the two outrights, the reduced tick size of the calendar spreads could more than compensate for transaction costs. More importantly, a 1,000-lot order in the calendar spreads can often be done without significantly moving the market.

In fact, the two calendar spreads need not be executed at the same time, as the spread prices are relatively stable. Market participants may have the luxury of time for establishing a larger position with less risk of the market moving away from them.

For more information, visit www.cmegroup.com/eurosp500.

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1 This publication is available from the equity index product section of CME Group Web site at http://www.cmegroup.com/trading/equity-index/equity-research-center.html.

2 The choice of hedge ratio depends on the market participants' ability (or willingness) to convert the daily cash variation from Euro to USD on a daily basis. If the participant chooses to carry a balance in Euro and only extinguishes (i.e. convert to USD) the balance at the closing of the position, the hedge ratio might need to be adjusted. See the NIKKEI spreading piece for a discussion.

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